



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,379	09/02/2004	Thomas Purr	DE 020057	1207
24737	7590	03/23/2005	EXAMINER	
PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510			CAO, HUEDUNG X	
			ART UNIT	PAPER NUMBER
			2821	
DATE MAILED: 03/23/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/506,379

Applicant(s)

PURR ET AL.

Examiner

Huedung X. Cao

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 09/02/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### ***Arrangement of the Specification***

2. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.

(b) CROSS-REFERENCE TO RELATED APPLICATIONS.

(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR  
DEVELOPMENT.

(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A  
COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer  
program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),  
and tables having more than 50 pages of text are permitted to be  
submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).  
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A

“Sequence Listing” is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required “Sequence Listing” is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2821

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over ZHOU (US 6,466,170 B2) in view of OKABE et al. (US 6,462,714 B1).

5. As per claim 1, Zhou teaches the claimed "a multiband microwave antenna" having "a substrate having at least a first metallization structure (11), wherein the first metallization structure has at least a metal area (111) forming a resonator area" which Zhou teaches in the planar radiating 12 on the dielectric 16 (column 2, line 59-column 3, line 7). Zhou does not explicitly disclose "a second metallization structure (12), wherein the second metallization has at least a resonant printed conductor structure (121)". However, Okabe teaches such "second metallization has at least a resonant printed conductor structure" is well known in the art (Okabe, the conductors on the top and the bottom of the conductive cubic 1 (column 6, lines 44-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Zhou's antenna with the second metallization has at least a resonant printed conductor structure, as taught by Okabe, doing so would allow the system to operate with multiple frequency ranges with a reduced sized antenna by utilizing both of upper and lower dielectric substrate (Okabe, column 10, line 66 to column 11, line 4, and column 12, lines 3-9).

Claim 2 adds into claim 1, "the metallization structures are applied to mutually opposed main faces of a substantially parallelepiped substrate (10)" which Zhou does not teach. However, Okabe teaches that such parallelepiped substrate having the metallization structures on its top and bottom surfaces is well known (Okabe, column 6,

lines 44-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Zhou's antenna with the metallization structures on top and bottom of the substrate, as taught by Okabe, doing so would allow the system to operate with multiple frequency ranges with a reduced sized antenna by utilizing both of upper and lower dielectric substrate (Okabe, column 10, line 66 to column 11, line 4, and column 12, lines 3-9).

Claim 3 adds into claim 1 that "the substrate (10) is arranged above a metallized base plate (2) that is at a reference potential" which Zhou teaches in the ground conductor 14 (Zhou, column 2, lines 59-65).

Claim 4 adds into claim 1, "there is opened in the metal area (111) of the first metallization structure at least a slot structure (112) that segments said metal area (111), thus enabling at least two resonant frequencies to be excited which Zhou teaches in the slot 26 (column 4, lines 1-11).

Claim 5 adds into claim 4, in which the at least a slot structure (112) is provided with at least a tuning slot (115, 116) which Zhou teaches in the tuning slot 26 (column 3, lines 36-39, 47-58).

Claim 6 adds into claim 1 "printed conductor structure is provided with a tuning slot" which Zhou does not teach. However, Okebe teaches that such "printed conductor structure is provided with a tuning slot" is well known (Okebe, the island conductor 6 on the lower surface of the conductive cubic 1; figure 1, column 6, lines 51-58). It would

Art Unit: 2821

have been obvious to one of ordinary skill in the art at the time the invention was made to employ Zhou's antenna with "printed conductor structure providing with a tuning slot", as taught by Okabe, doing so would allow the system to operate with multiple frequency ranges with a reduced sized antenna by utilizing both of upper and lower dielectric substrate (Okabe, column 10, line 66 to column 11, line 4, and column 12, lines 3-9).

Claim 7 adds into claim 1, a multiband antenna which is fed via a feed pin (113) that is connected to the first and/or to the second metallization structure which Zhou teaches in the feeding strap 18 (column 3, lines 18-22).

Claim 8 adds into claim 1, a multiband antenna in which the first and/or the second metallization structure (11, 12) is connected to a shorting pin (114) fastened to the metallized base plate which Zhou teaches in the shorting straps 20 and 22 (column 3, lines 8-15).

Claim 9 adds into claim 1, "a printed circuit board, particularly for a mobile telecommunications device, having a multiband microwave antenna" which Zhou teaches in column 2, lines 59-65.

Claim 10 adds into claim 1, "a telecommunications device having a multiband microwave antenna" which Zhou teaches in column 2, lines 45-49.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ghosh et al. (US 6683571 B2) teach a multiband microwave antenna with dielectric substrate, resonant conductor track, and tuning stub lines.

Nallo et al. (US 6762723 B2) teach a wireless communication device having multiband antenna.



***Inquires***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Huedung Cao', with a long horizontal stroke extending to the right.

Huedung Cao  
Patent Examiner